THE

WATERLOG® SERIES

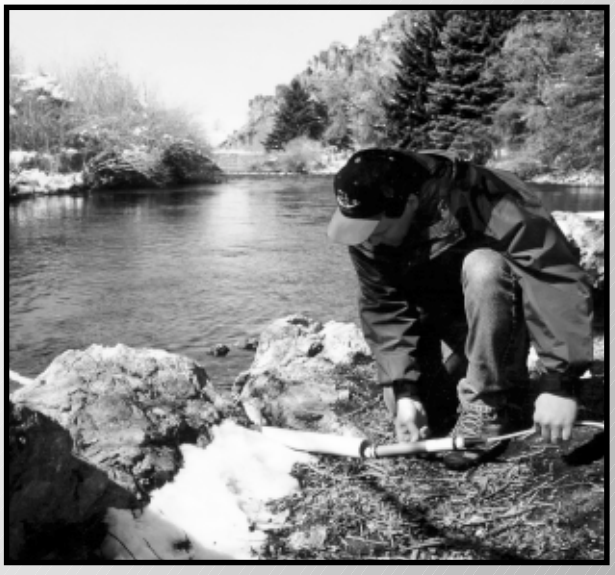
Model DH-21

The highly acclaimed *WATER*LOG is a submersible pressure transducer and data logger providing users the COMPLETE data collection solution designed specifically to put the user in control of:

- Ground Water Monitoring
- Well Testing (pump/slug)
- Surface Water Measurements
- Stream Gauging Applications

KEY FEATURES

- Rugged and Immune to Corrosion
- Combined Sensor and Logger (Fluid Level and Temperature)
- Flash Memory for Data Storage
- Five Different Logging Modes
- Stores 43,688 Data Points, upgradable to 174,752
- "Point and Click" Software Interface
- Data Displayed Graphically or Tabular
- Field Spliceable Vented Cable
- User Changeable Long Life Lithium Batteries, External 12-Volt Power Option
- Fits 2" (or larger) Well Bores
- Automatic Media Density Corrections
- Interfaces to Lap Top/Palm Top/Field Terminals Via RS-232
- Logger to Surface Interface is RS-485 (for long cable interconnect)
- Features On-Site "Auto-Zeroing" Command



SPECIFICATIONS

SENSOR SPECIFICATIONS

Accuracy
(Maximum percent of error in measurement)
Pressure: Better than ± 0.03% of full scale output (FSO) over temperature range referenced to a straigh line stretched from zero psi to maximum pressure.
Temperature: Internal temperature ±1°C over temperature range.

A/D Resolution
(Smallest change detectable in output signal)
Pressure: **1 part in 250,000 (0.0004%)**
Temperature: **1 part in 250,000 (0.0004%)**

Output Resolution(Displayed)
Pressure: 0.0001 psi
Temperature: 0.01°C

Linearity
Less than 0.02% deviation from a straight line referenced to end points.

Pressure Hysteresis
Less than 0.03% of FSO.

Long-term Stability
Accuracy drift is less than ± 0.05% of FSO per year.

Standard Pressure Ranges

Pressure	Depth	Accuracy
0 to 15 psi	0 to 34.60 feet	± 0.01 feet
0 to 30 psi	0 to 69.20 feet	± 0.02 feet

Pressure Overload: Up to 2 times the rated pressure.

Custom Calibration Ranges Available
0 to 5 psi - 0 to 100 psi

Environmental Restrictions
Operating Range: 0 to 60°C (nonfreezing)
Compensated Range: 0 to 40°C
Storage: -10 to 70°C
Extended Range: Consult Factory

Media Compatibility
Liquids and gases compatible with PVC, Polyethylene, Stainless Steel and Ethylene Propylene.

Pressure Port
Stainless steel screen with 149 micron filter, field replaceable.

LOGGER SPECIFICATIONS

Communications Interface
Stored data is extracted via an RS-232 or RS-485 connection at 9600 baud, 8-bit with no parity, 1 stop bit.

Capacity
Memory: Nonvolatile Flash Memory, 128Kbytes, upgradable to 512Kbytes.
Number of Data Points:
43,688 Data Points typical for 128Kbytes (logging date, time, pressure and temperature) Upgradable to 512Kbytes (174,752 data points typical).

User Notes: 160 ASCII characters.

Logging Modes
Types of Logging:
Time Linear: Programmable from 1 second to 24 hours.

Linear Δ: Logs on 1-second to 24-hour intervals. Logs data dependent on a change specified by user. This mode conserves memory.

Linear Hyper: Logs on 1-second to 24-hour intervals. In this mode important events are captured. Data is collected at up to 256 times the normal logging rate when a user defined rate of change is exceeded.

Linear Hyper Δ: Logs on 1-second to 24-hour intervals. This mode minimizes memory use and prolongs battery life by adjusting the logging rate as defined by user entered rate of change.

Variable: Allows user to define Logarithmic/Variable logging intervals, 6 user definable intervals. (Ideal for well testing and other applications.)

Zero Offset Command
Allows user to set offset to zero either at zero pressure or at a datum or reference point.

GENERAL SPECIFICATIONS

Power Supply
Primary Source: 2 Lithium cells at 3.6 V each **(User Replaceable)**

Or Alternate External Sources Ranging from 6V - 15V.

SPECIFICATIONS CONT.

Dry Air System
A proprietary dry air system prevents moisture from condensing in the *WATER*LOG. Provides automatic compensation for changes in atmospheric pressure without impairing the sensor's accuracy.

Sensor Cables
*WATER*LOG to Surface Mounting Enclosure:
Field spliceable 1/4" vented cable allows quick reference to atmospheric pressure and minimizes the chances of vent blockage by particulates or kinks which are problems inherent to smaller vent tubes.
Vented, shielded, three-wire cable; 10 foot standard length (longer lengths are available if required).

Surface Mounting Enclosure to PC or I/O Device:
The I/O connector on the mounting enclosure provides an easy interconnect to Lap Top, Palm Top, PC or field terminal, etc.

Mechanical Data
Material: Noncompressible and noncorrosive engineering plastics with polyethylene vent tubing.
Size: 1.425" maximum diameter x 12" long.

Designed to go in 2" (OR LARGER) WELL BORES.

The *WATER*LOG includes a surface mounting enclosure which includes battery, RS-232 communication electronics and a dry air system. These facilities can be packaged for various applications such as well top and stream gauging. (Consult factory for information on well and stream gauging installation packages.)

Warranty
The *WATER*LOG is warranted against defects in materials and workmanship for one year from date of shipment.

Note
Specifications outlined above are subject to change without prior notice due to an ongoing commitment to testing and product improvement.
September 1, 2000

WATERLOG® SERIES
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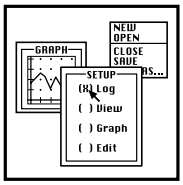
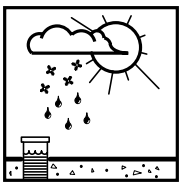
1 INSTALL

Site installation is a snap with different installation options.



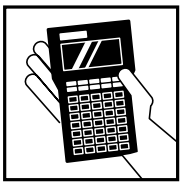
2 SETUP

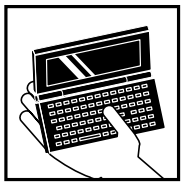
Only a few setup options are required to start the logging process. This can be done in the office or at the site.



3 LOGGING

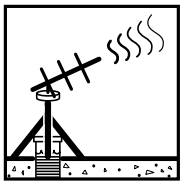
Once set up and installed, the logger can record data for up to two years based on logging data once an hour. The equipment can withstand harsh natural environments.





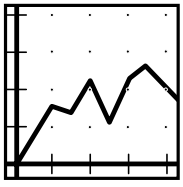
4 SITE SERVICE

Site service can be done using a simple ASCII Hand Terminal, Palm Top PC, or a Lap Top. Site servicing normally includes changing the batteries, (if required) data retrieval, data analysis and making any needed site adjustments.



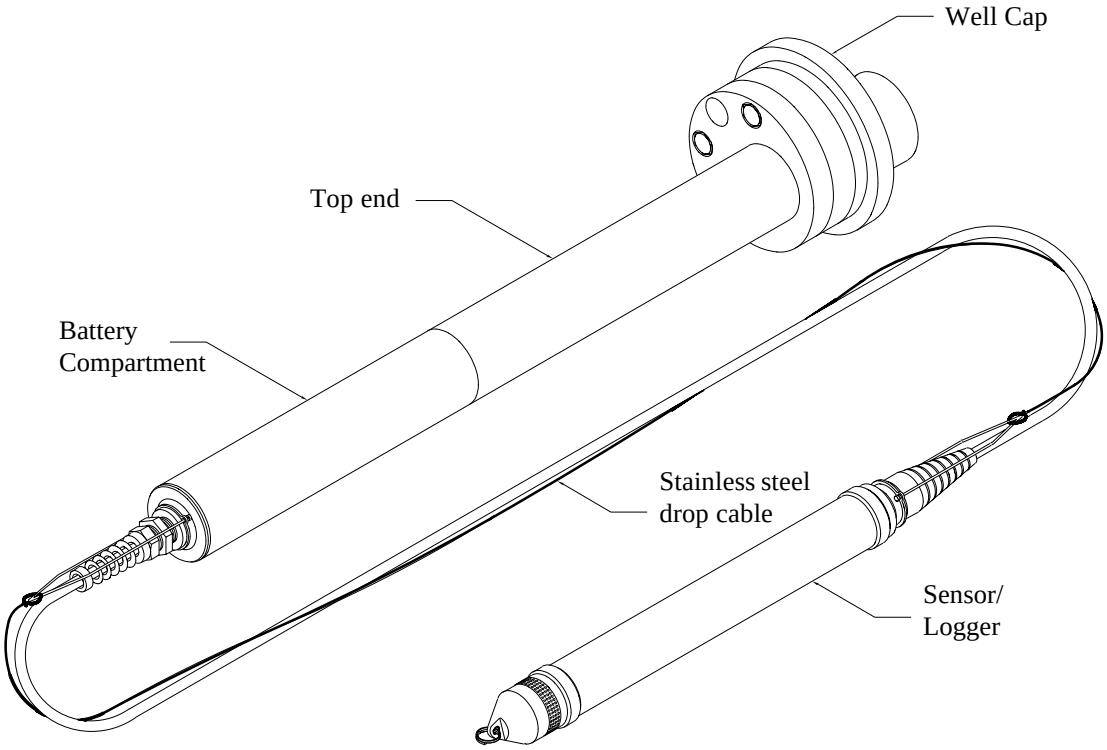
5 REMOTE DATA RETRIEVAL

Remote access can be accomplished via modem (cellular or land line).



6 DATA ANALYSIS

Data can be analyzed using our innovative "*WATER*WARE"™, point and click software or popular spreadsheet programs.



For Information on WATERLOG® Products contact:

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